

## IX. INSECTA.

### APTERA.

#### COLLEMBOLA.

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(Plate XLVII.)

THE presence of at least one species of springtail on the Antarctic Continent is not the least interesting fact established through the voyage of the '*Southern Cross*.' Eight specimens of an *Isotoma* were collected on Geikie Land at the head of Robertson Bay (about 71° 40' S. Lat., 169° 50' E. Long.) in the month of November, 1899, by Dr. Klovstad, who found the insects among lichens when engaged in a botanical expedition.<sup>1</sup> Springtails are fairly numerous in the Arctic regions, as many as sixty-one species being recorded in the recent comprehensive summary of Schäffer.<sup>2</sup> Among these the genus *Isotoma* is predominant, sixteen of the sixty-one species belonging to it. It is of interest that the first discovered Antarctic springtail should prove to be an *Isotoma*, especially as the genus has been traced into the southern hemisphere only during the last few years.

The insects were mounted as microscopic preparations in balsam shortly after their capture. Unfortunately, the delicate integument of springtails renders them very liable to shrivel in such a medium, and all the specimens are more or less distorted. But from the number of slides available, it has been possible to make out all the principal structural features of the insect. *Isotoma* is readily

<sup>1</sup> C. E. Borchgrevink, 'First on the Antarctic Continent,' London (1901), pp. 231-2.

<sup>2</sup> C. Schäffer, 'Die Arktischen und Sub-Arktischen Collembola,' in Römer and Schaudinn's 'Fauna Arctica,' Jena (1900), pp. 237-258.

distinguished from other genera of its family by the forwardly directed head, the close equality in length between the third and fourth abdominal segments, and the entire absence of scales.

As might have been expected, the Geikie Land *Isotoma* does not seem to be referable to any described species, though, as will be seen, it closely approaches one from Tierra del Fuego.

#### FAMILY ENTOMOBRYIDAE.

##### ISOTOMA KLOVSTADI.

Plate XLVII., figs. 1-8.

Antennae 1.6 times as long as the head, the second segment slightly longer than the third, but markedly shorter than the fourth. Eight ocelli on each side; post-antennal organ elongate, about twice as long as an ocellus. Feet without tenent hairs; both upper and lower claws without teeth; third abdominal segment slightly longer than the fourth. Spring (apparently borne on the fifth abdominal segment) with very slender dentes,  $2\frac{1}{2}$  times as long as the manubrium; mucro narrow and elongate, with straight ventral edge, prominent apical and sub-apical teeth, and two less prominent dorsal teeth close together.

*Colour*.—Dark blue-violet; legs and spring yellowish-brown.

*Length*.—2 mm.

This springtail seems to be related to the common European and American *Isotoma palustris* (Müller); in that species, however, the feelers are relatively longer and the mucro much shorter and thicker than in this.

No member of the genus *Isotoma* was known outside the Holarctic region until Lord Avebury in 1879 recorded an undeterminable species from Kerguelen.<sup>1</sup> Recently, however, several species have been described by Schäffer from the southern regions of America, and it is one of his Fuegian *Isotomae*—*I. silvatica*<sup>2</sup>—that of all hitherto known species seems the nearest to our insect from Geikie Land. The feet of *I. silvatica* seem to agree almost exactly with those of *I. Klovstadi*. So do the antennal segments in their relative lengths. Only in the Antarctic insect the antennae as a

<sup>1</sup> Sir J. Lubbock, 'Collembola in "The Collections of Kerguelen Island,"' Phil. Trans., CLXVIII. (1879), p. 249.

<sup>2</sup> C. Schäffer, 'Hamburger Magalhaensische Sammelreise: Aapterygoten,' Hamburg (1897), p. 18, figs. 34-7.

whole are relatively longer than in *I. silvatica*, while in the latter species the third and fourth abdominal segments are equal to one another, and the mucro is comparatively short and stout. It could, however, be readily derived from the mucro of *I. Klovstadi*, as the general arrangement of the teeth is identical in the two species. The post-antennal organ in *I. silvatica* is more rotund than in our insect.

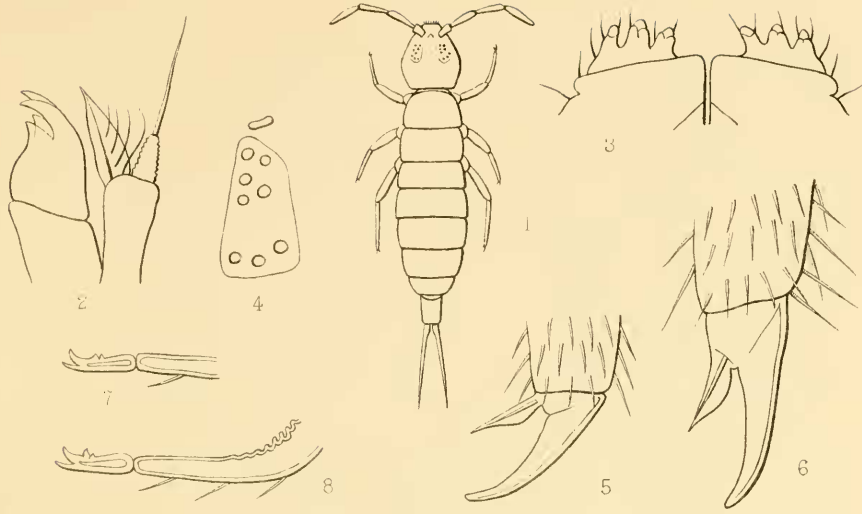
Several of the specimens were so mounted as to exhibit portions of the jaws. It seemed advisable, therefore, to figure the parts visible—the labium (Fig. 3) and the extremity of a maxilla and its palp (Fig. 2). The maxillary palp in this species is prolonged into a thin leaf-like process bearing four bristles, while the fifth bristle is borne on a very prominent papilla.

Our knowledge of the distribution of these insects is as yet too incomplete to elucidate any details of ancient geography. But the existence of a species of this order of wingless insects in Geikie Land—a species belonging to a genus widely spread in the northern hemisphere—cannot but support the theory of a former extension of the Antarctic Continent. And the further fact that the species is closely related to a Fuegian insect is consistent with the view that there may have been a southern route of migration between eastern and western lands.

## EXPLANATION OF FIGURES.

### PLATE XLVII.

- Fig. 1.—*Isotoma Klovstadi*. Dorsal view,  $\times 18$ .  
 Fig. 2.—Left maxilla (ventral aspect), showing head and extremity of palp,  $\times 350$ .  
 Fig. 3.—Labium (ventral aspect),  $\times 350$ .  
 Fig. 4.—Ocelli and post-antennal organ of right side,  $\times 200$ .  
 Fig. 5.—Fore-foot,  $\times 350$ .  
 Fig. 6.—Hind-foot,  $\times 350$ .  
 Figs. 7, 8.—Mucro drawn from two specimens to show variation,  $\times 350$ .



B.M.C del

West, Newman lith

ISOTOMA KLOVSTADI.



3a

300x



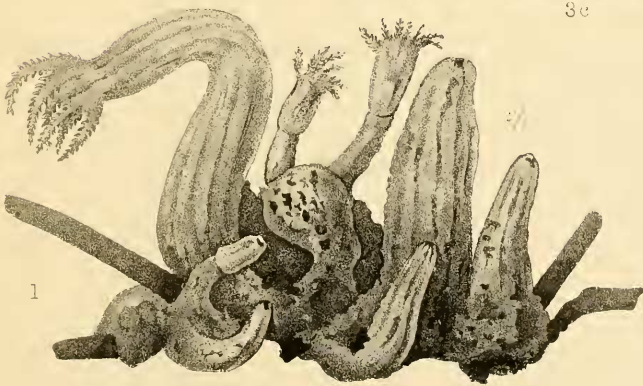
3b

300x



300x

3c



1



2

6x

L.Roule del

West, Newman lith.

CLAVULARIA FRANKLINIANA